

**AIR MONITORING SUMMARY REPORT**  
***Shoreline Revetment; Site Grading and Consolidation of  
Excavated Soil, Sediment, and Debris; and  
Upland Slurry Wall Installation  
Remedial Action, Parcel E-2  
Hunters Point Naval Shipyard  
San Francisco, California***

***Data from December 7 through December 26, 2016***

***Contract Number: N62473-12-D-2005  
Contract Task Order: 0013***

Prepared for:



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## Acronyms and Abbreviations

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CB&I	CB&I Federal Services LLC
CFR	Code of Federal Regulations
DCP	Dust Control Plan
EPA	U.S. Environmental Protection Agency
HPNS	Hunters Point Naval Shipyard
L/min	liters per minute
NIOSH	National Institute for Occupational Safety and Health
OSHA	Occupational Safety and Health Administration
PAH	polynuclear aromatic hydrocarbon
PCB	polycyclic biphenyl
PM10	particulate matter larger than 10 microns in size
PUF	polyurethane foam
TSP	total suspended particulates
Work Plan	<i>Final Work Plan, Shoreline Revetment; Site Grading and Consolidation of Excavated Soil, Sediment, and Debris; and Upland Slurry Wall Installation, Remedial Action, Parcel E-2, Hunters Point Naval Shipyard, San Francisco, California</i>

## 1.0 Introduction

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CB&I Federal Services LLC (CB&I) is providing environmental remediation services to the U.S. Navy under the Environmental Multiple Award Contract, Contract No. N62473-12-D-2005, Contract Task Order 0013. CB&I is performing air monitoring at Hunters Point Naval Shipyard (HNPS) in accordance with the Dust Control Plan (DCP) included as Appendix D to the *Final Work Plan, Shoreline Revetment; Site Grading and Consolidation of Excavated Soil, Sediment, and Debris; and Upland Slurry Wall Installation, Remedial Action, Parcel E-2, Hunters Point Naval Shipyard, San Francisco, California* (Work Plan; CB&I, 2016). The DCP describes procedures that minimize dust during work activities, and requires air monitoring to ensure these procedures are effective. The DCP helps prevent exposure of residents and construction crews to potential airborne chemicals of concern, and dust from the work area.

This summary report describes the following:

- Where and how air monitoring samples are collected
- What test methods are used to analyze air monitoring samples
- How air monitoring data are evaluated.

This summary report also presents the air monitoring test results from December 7 through 26, 2016 and compares the results with the established action levels included in the Work Plan (CB&I, 2016).

## 2.0 Monitoring Site Locations

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Air monitoring stations were mobilized to collect air samples upwind and downwind of work areas for the duration of the project. The predominant wind direction at HPNS is from the west. Locations of air monitoring stations and wind direction are shown on Figure 1. Air monitoring is being performed to help ensure effective dust control. The locations of the air monitoring stations were determined based on the prevailing wind direction and can be modified as needed. A windsock is used to show wind direction and weather forecasts are checked daily at [www.noaa.gov](http://www.noaa.gov). Monitoring stations remain stationary while sampling is being conducted. Each monitoring station includes four separate monitoring systems for:

1. Total suspended particulates (TSP) and for arsenic, lead and manganese
2. Particulate matter larger than 10 microns in size (PM10)
3. Polycyclic biphenyls (PCBs) alternated with polynuclear aromatic hydrocarbons (PAHs)
4. Asbestos.

### 3.0 Analytical Methods

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**TSP, Arsenic, Lead, and Manganese.** TSP samples are collected with a high-volume (39 to 60 cubic feet per minute) air sampler in accordance with U.S. Environmental Protection Agency's (EPA's) reference sampling method for TSP, described in Title 40 Code of Federal Regulations (CFR), Part 50, Appendix B. Each sample is collected on a filter over an approximately 24-hour period; the filter is then weighed to determine the amount of TSP collected. Once the amount of TSP has been determined, the sample is analyzed for arsenic, lead and manganese in accordance with one of the IO-3 methods identified in the *Compendium of Methods for the Determination of Inorganic Compounds in Ambient Air* (EPA, 1999a). The equipment specifications and sampling procedures used, including the sampling apparatus, filters, equipment accuracy, equipment calibration, and quality assurance checks, all conform to those specified in the analytical method.

**PM10.** Air samples are collected and analyzed for PM10 in accordance with EPA's reference sampling method for PM10, described in 40 CFR Part 50, Appendix J. Each sample is collected on a filter over an approximately 24-hour period; the filter is then weighed to evaluate the concentrations of PM10 in ambient air.

**PCBs.** Air samples are collected and analyzed for PCBs in accordance with EPA Method TO-4A (EPA 1999b). Each sample is collected over an approximately 24-hour period. The sample is collected using a high-volume polyurethane foam (PUF) sampling apparatus, followed by gas chromatographic/multi-detector detection to evaluate PCB concentrations in ambient air.

**PAHs.** Air samples are collected and analyzed for PAHs in accordance with EPA Method TO-13A (EPA 1999c). Each sample is collected over an approximately 24-hour period. The sample is collected using a high-volume PUF sampling apparatus, followed by gas chromatography/mass spectrometry to evaluate PAH concentrations in ambient air.

**Asbestos.** Air samples are collected and analyzed for asbestos in accordance with the National Institute for Occupational Safety and Health (NIOSH) Method 7400, in the *NIOSH Manual of Analytical Methods* (NIOSH, 1994). Method 7400 requires that samples be collected on three-piece cellulose ester filters, which are fitted with conductive cowlings, at a sampling rate of between 0.5 liter per minute (L/min) and 16 L/min.

### 4.0 Analysis of Dust and Air Monitoring Data

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Analytical results from air monitoring samples are compared with the threshold criteria listed in Table 1.

**Table 1 Air Monitoring Threshold Criteria**

Test Parameters	Threshold Criteria	Basis
PM10	5,000 µg/m <sup>3</sup>	Cal/OSHA PEL <sup>a</sup>
TSP	0.5 mg/m <sup>3</sup>	Basewide HPNS Level selected to minimize overall permissible dust release from sites
Arsenic	10 µg/m <sup>3</sup>	Cal/OSHA PEL
Lead	50 µg/m <sup>3</sup>	Cal/OSHA PEL
Manganese	200 µg/m <sup>3</sup>	Cal/OSHA PEL
PCBs	500 µg/m <sup>3</sup>	Cal/OSHA PEL
PAHs	200 µg/m <sup>3</sup>	Cal/OSHA PEL
Asbestos	0.1 fiber/cm <sup>3</sup>	Cal/OSHA PEL

Notes:

<sup>a</sup> – Cal/OSHA PEL for particulates not otherwise regulated (respiratory) used for PM10.

µg/m<sup>3</sup> – micrograms per cubic meter

Cal/OSHA – California Occupational Safety and Health Administration

fiber/cm<sup>3</sup> – fibers per cubic centimeter

HPNS – Hunters Point Naval Shipyard

mg/m<sup>3</sup> – milligrams per cubic meter

PAHs – polynuclear aromatic hydrocarbons

PCBs – polycyclic biphenyls

PEL – permissible exposure limit

PM10 – particulate matter smaller than 10 microns in diameter

TSP – total suspended particulates

## 5.0 Air Monitoring Results

Weather information (including ambient pressure and temperature data) and air monitoring results are presented in the tables included as Attachment 1. Data were collected from upwind Station 13 and downwind Stations 14 and 10A from December 7 through 26, 2016. Station 14 was used as the downwind station on December 7, 2016 because excavation was performed in the Panhandle area and no material was on the radiological screening yard (RSY) pads. Station 10A was used as the downwind station starting on December 19, 2016 because excavated soil was on the RSY pads and personnel were actively working in this area. Data were not collected on December 8 through 16 and 23, 2016 due to rain. Samples were not collected on December 26, 2016 because the site was shut down for the holidays.

## 6.0 References

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CB&I Federal Services LLC (CB&I), 2016, *Final Work Plan, Shoreline Revetment; Site Grading and Consolidation of Excavated Soil, Sediment, and Debris; and Upland Slurry Wall Installation, Remedial Action, Parcel E-2, Hunters Point Naval Shipyard, California*, October.

National Institute for Occupational Safety and Health (NIOSH), 1994, *NIOSH Manual of Analytical Methods, Method 7400*, August.

U.S. Environmental Protection Agency (EPA), 1999a, *Compendium of Methods for the Determination of Inorganic Compounds in Ambient Air*.

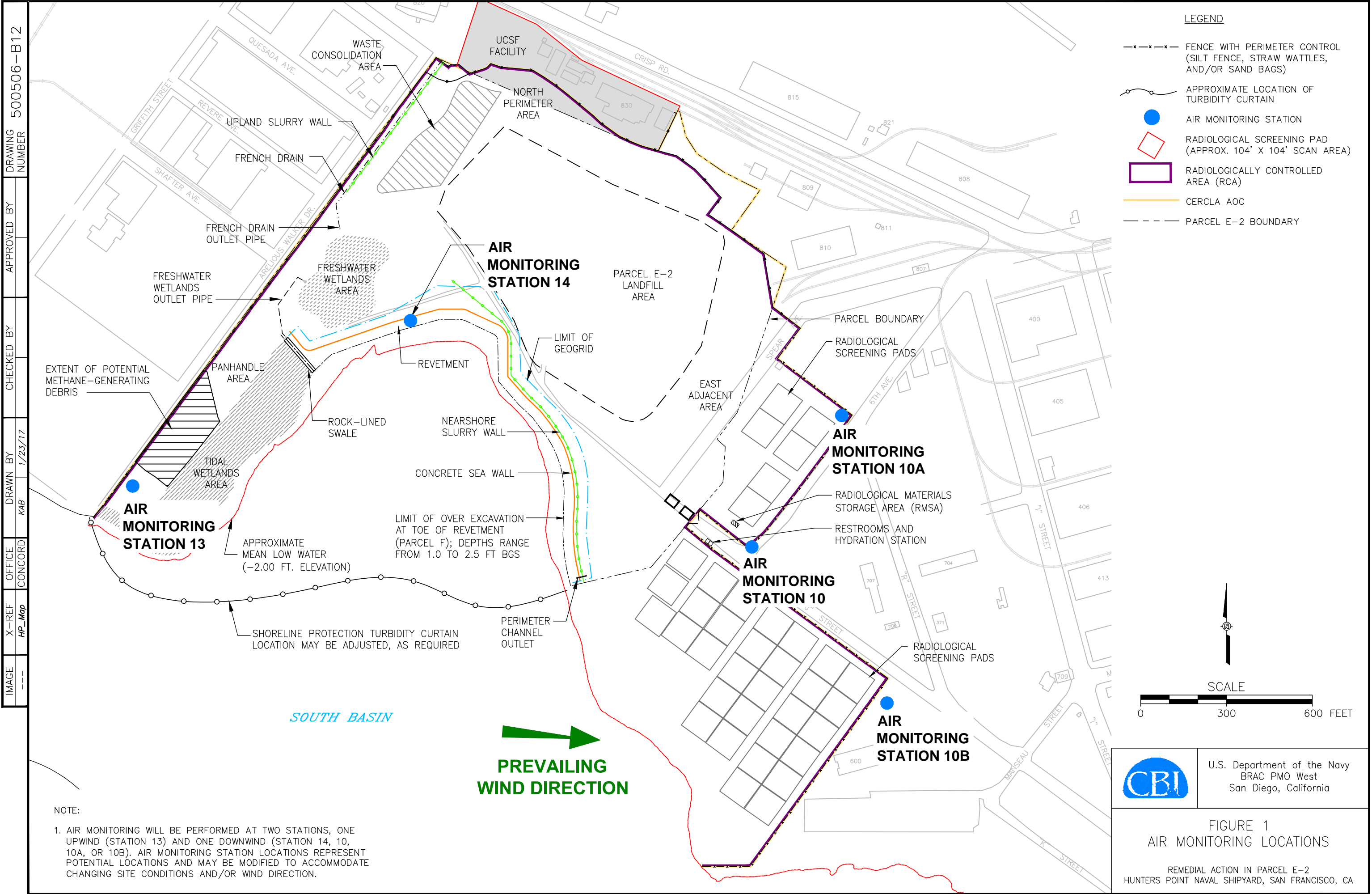
EPA, 1999b, *Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air, Second Edition. Compendium Method TO-4A, Determination of Pesticides and Polychlorinated Biphenyls in Ambient Air Using High Volume Polyurethane Foam (PUF) Sampling Followed by Gas Chromatographic/Multi-Detector Detection (GC/MD)*. EPA/625/R-96-010b, Office of Research and Development, January. Available Online at: <<http://www.epa.gov/ttnamti1/files/ambient/airtox/to-4ar2r.pdf>>.

EPA, 1999c, *Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air, Second Edition. Compendium Method TO-13A, Determination of Polycyclic Aromatic Hydrocarbons in Ambient Air Using Gas Chromatography/Mass Spectrometry (GC/MS)*, EPA/625/R-96/010b, January. Available Online at: <<http://www.epa.gov/ttnamti1/files/ambient/airtox/to-13arr.pdf>>.

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*Figure*

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U.S. Department of the Navy  
BRAC PMO West  
San Diego, California

***Attachment 1***  
***Air Sampling Results***

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**Table 1**  
**Ambient Pressure and Temperature Monitoring Results**

<b>Date</b>	<b>Ambient Pressure (in Hg)</b>	<b>Ambient Temperature (°C)</b>
7-Dec-16	30.24	8.7
8-Dec-16	30.24	11.2
9-Dec-16	30.30	15.1
12-Dec-16	30.22	11.2
13-Dec-16	30.20	12.3
14-Dec-16	30.12	13.9
15-Dec-16	30.02	12.7
16-Dec-16	30.17	9.4
19-Dec-16	30.50	8.8
20-Dec-16	30.39	11.2
21-Dec-16	30.22	12.9
22-Dec-16	30.08	12.1
23-Dec-16	30.00	10.3
26-Dec-16	30.41	9.1

**Notes:**

°C - degrees Celsius

in Hg - inches of mercury

Ambient pressure and ambient temperature data were gathered from the wunderground weather website ([www.wunderground.com](http://www.wunderground.com)). Data were collected from station KCASANFR58 at 1200.

**Table 2**  
**TSP and Metals Monitoring Results**

Date	Sample Location	Sampling Period (hours)	TSP (mg/m <sup>3</sup> )	TSP Exceedance? (Yes/No)	Arsenic (µg/m <sup>3</sup> )	Arsenic Exceedance? (Yes/No)	Lead (µg/m <sup>3</sup> )	Lead Exceedance? (Yes/No)	Manganese (µg/m <sup>3</sup> )	manganese Exceedance? (Yes/No)
7-Dec-16	13	24.6	0.0220	No	<0.016	No	<0.016	No	1.2200	No
7-Dec-16	14	24.7	0.0210	No	<0.016	No	<0.016	No	1.3500	No
8-Dec-16	13	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1
8-Dec-16	14	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1
9-Dec-16	13	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1
9-Dec-16	14	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1
12-Dec-16	13	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1
12-Dec-16	14	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1
13-Dec-16	13	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1
13-Dec-16	14	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1
14-Dec-16	13	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1
14-Dec-16	14	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1
15-Dec-16	13	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1
15-Dec-16	14	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1
16-Dec-16	13	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1
16-Dec-16	14	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1
19-Dec-16	13	24.1	0.0410	No	<0.016	No	1.2100	No	2.2800	No
19-Dec-16	10A	23.9	0.0220	No	<0.016	No	<0.016	No	1.7500	No
20-Dec-16	13	23.9	0.0460	No	<0.016	No	2.2700	No	3.3900	No
20-Dec-16	10A	24.1	0.0240	No	<0.016	No	<0.016	No	1.7200	No
21-Dec-16	13	24.0	0.0660	No	<0.016	No	2.4900	No	4.7100	No
21-Dec-16	10A	23.9	0.0260	No	<0.016	No	<0.016	No	2.0900	No
22-Dec-16	13	7.4	0.0240	No	<0.016	No	<0.016	No	2.2500	No
22-Dec-16	10A	7.3	0.0076	No	<0.016	No	<0.016	No	<0.016	No
23-Dec-16	13	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1
23-Dec-16	10A	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1
26-Dec-16	13	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2
26-Dec-16	10A	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2

**Notes:**

Sample locations are shown on Figure 1.

The threshold criteria are as follows: TSP = 0.5 mg/m<sup>3</sup>, arsenic = 10 µg/m<sup>3</sup>, lead = 50 µg/m<sup>3</sup>, manganese = 200 µg/m<sup>3</sup>.

The detection limit for TSP is 0.06 µg/m<sup>3</sup> assuming a minimum sample volume of 1,600 m<sup>3</sup>. The detection limits for arsenic, lead and manganese are 16 ng/m<sup>3</sup> assuming minimum sample volumes of 1,600 m<sup>3</sup>.

µg/m<sup>3</sup> - micrograms per cubic meter

mg/m<sup>3</sup> - milligrams per cubic meter

N/A - not applicable

ng/m<sup>3</sup> - nanograms per cubic meter

TSP - total suspended particulates

Note 1 - Sample not collected due to inclement conditions: Rain.

Note 2 - Samples were not collected as project site was closed for holidays.

**Table 3**  
**PM10 Monitoring Results**

<b>Date</b>	<b>Sample Location</b>	<b>Sampling Period (hours)</b>	<b>PM10 (<math>\mu\text{g}/\text{m}^3</math>)</b>	<b>PM10 Exceedance? (Yes/No)</b>
7-Dec-16	13	24.6	22.0	No
7-Dec-16	14	24.7	21.0	No
8-Dec-16	13	Note 1	Note 1	Note 1
8-Dec-16	14	Note 1	Note 1	Note 1
9-Dec-16	13	Note 1	Note 1	Note 1
9-Dec-16	14	Note 1	Note 1	Note 1
12-Dec-16	13	Note 1	Note 1	Note 1
12-Dec-16	14	Note 1	Note 1	Note 1
13-Dec-16	13	Note 1	Note 1	Note 1
13-Dec-16	14	Note 1	Note 1	Note 1
14-Dec-16	13	Note 1	Note 1	Note 1
14-Dec-16	14	Note 1	Note 1	Note 1
15-Dec-16	13	Note 1	Note 1	Note 1
15-Dec-16	14	Note 1	Note 1	Note 1
16-Dec-16	13	Note 1	Note 1	Note 1
16-Dec-16	14	Note 1	Note 1	Note 1
19-Dec-16	13	24.1	41.0	No
19-Dec-16	10A	23.9	22.0	No
20-Dec-16	13	23.9	46.0	No
20-Dec-16	10A	24.1	24.0	No
21-Dec-16	13	24.0	66.0	No
21-Dec-16	10A	23.9	26.0	No
22-Dec-16	13	7.4	24	No
22-Dec-16	10A	7.3	7.6	No
23-Dec-16	13	Note 1	Note 1	Note 1
23-Dec-16	10A	Note 1	Note 1	Note 1
26-Dec-16	13	Note 2	Note 2	Note 2
26-Dec-16	10A	Note 2	Note 2	Note 2

**Notes:**

Sample locations are shown on Figure 1.

The threshold value for PM10 is  $5,000 \mu\text{g}/\text{m}^3$ .

The detection limit for PM10 is  $0.06 \mu\text{g}/\text{m}^3$  assuming a minimum sample volume of  $1,600 \text{ m}^3$ .

$\mu\text{g}/\text{m}^3$  - micrograms per cubic meter

N/A - not applicable

PM10 - particulate matter smaller than 10 microns in diameter

Note 1 - Sample not collected due to inclement conditions: Rain.

Note 2 - Samples were not collected as project site was closed for holidays.

Table 4  
PCB Monitoring Results

Date	Sample Location	Sampling Period (hours)	Aroclor-1016 (µg/m <sup>3</sup> )	Aroclor-1221 (µg/m <sup>3</sup> )	Aroclor-1232 (µg/m <sup>3</sup> )	Aroclor-1242 (µg/m <sup>3</sup> )	Aroclor-1248 (µg/m <sup>3</sup> )	Aroclor-1254 (µg/m <sup>3</sup> )	Aroclor-1260 (µg/m <sup>3</sup> )	Aroclor-1262 (µg/m <sup>3</sup> )	Total PCBs (µg/m <sup>3</sup> )	PCB Exceedance? (Yes/No)
7-Dec-16	13	24.6	<0.0017	<0.0017	<0.0017	<0.0017	<0.0017	<0.0017	<0.0017	<0.0017	<0.0017	No
7-Dec-16	14	24.7	<0.0017	<0.0017	<0.0017	<0.0017	<0.0017	<0.0017	<0.0017	<0.0017	<0.0017	No
8-Dec-16	13	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1
8-Dec-16	14	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1
9-Dec-16	13	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1
9-Dec-16	14	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1
12-Dec-16	13	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1
12-Dec-16	14	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1
13-Dec-16	13	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1
13-Dec-16	14	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1
14-Dec-16	13	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1
14-Dec-16	14	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1
15-Dec-16	13	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1
15-Dec-16	14	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1
16-Dec-16	13	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1
16-Dec-16	14	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1
19-Dec-16	13	24.1	<0.0017	<0.0017	<0.0017	<0.0017	<0.0017	<0.0017	<0.0017	<0.0017	<0.0017	No
19-Dec-16	10A	23.9	<0.0017	<0.0017	<0.0017	<0.0017	<0.0017	<0.0017	<0.0017	<0.0017	<0.0017	No
21-Dec-16	13	24.0	<0.0017	<0.0017	<0.0017	<0.0017	<0.0017	<0.0017	<0.0017	<0.0017	<0.0017	No
21-Dec-16	10A	23.9	<0.0017	<0.0017	<0.0017	<0.0017	<0.0017	<0.0017	<0.0017	<0.0017	<0.0017	No
23-Dec-16	13	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1
23-Dec-16	10A	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1
26-Dec-16	13	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2
26-Dec-16	10A	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2

**Notes:**  
Sample locations are shown on Figure 1.  
The threshold value for PCBs is 500 µg/m<sup>3</sup>.  
The detection limit for PCBs is 0.0017 µg/m<sup>3</sup> assuming a minimum sample volume of 300 m<sup>3</sup>.  
µg/m<sup>3</sup> - micrograms per cubic meter  
N/A - not applicable  
PCBs - polycyclic biphenyls  
Note 1 - Sample not collected due to inclement conditions: Rain.  
Note 2 - Samples were not collected as project site was closed for holidays.

Table 5  
PAH Monitoring Results

Date	Sample Location	Sampling Period (hours)	1-Methyl naphthalene (µg/m³)	2-Methyl naphthalene (µg/m³)	Acenaphthene (µg/m³)	Acenaphthylene (µg/m³)	Anthracene (µg/m³)	Benzo(a) anthracene (µg/m³)	Benzo(a) pyrene (µg/m³)	Benzo(b) fluoranthene (µg/m³)	Benzo(g,h,i) perylene (µg/m³)	Benzo(k) fluoranthene (µg/m³)
7-Dec-16	13	24.6	<0.0017	<0.0017	<0.0017	<0.0017	<0.0017	<0.0017	<0.0017	<0.0017	<0.0017	<0.0017
7-Dec-16	14	24.7	<0.0017	<0.0017	<0.0017	<0.0017	<0.0017	<0.0017	<0.0017	<0.0017	<0.0017	<0.0017
8-Dec-16	13	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1
8-Dec-16	14	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1
9-Dec-16	13	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1
9-Dec-16	14	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1
12-Dec-16	13	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1
12-Dec-16	14	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1
13-Dec-16	13	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1
13-Dec-16	14	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1
14-Dec-16	13	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1
14-Dec-16	14	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1
15-Dec-16	13	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1
15-Dec-16	14	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1
16-Dec-16	13	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1
16-Dec-16	14	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1
20-Dec-16	13	23.9	0.96	1.7	0.56	0.48	0.81	<0.0017	<0.0017	<0.0017	<0.0017	<0.0017
20-Dec-16	10A	24.1	0.77	1.4	0.67	0.24	<0.0017	<0.0017	<0.0017	<0.0017	<0.0017	<0.0017
22-Dec-16	13	7.4	<0.0017	0.28	0.23	0.33	0.21	<0.0017	<0.0017	<0.0017	<0.0017	<0.0017
22-Dec-16	10A	7.3	0.37	0.66	<0.0017	<0.0017	<0.0017	<0.0017	<0.0017	<0.0017	<0.0017	<0.0017
23-Dec-16	13	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1
23-Dec-16	10A	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1
26-Dec-16	13	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2
26-Dec-16	10A	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2

Table 5  
PAH Monitoring Results

Date	Sample Location	Sampling Period (hours)	Chrysene (µg/m³)	Dibenz(a,h) anthracene (µg/m³)	Fluoranthene (µg/m³)	Fluorene (µg/m³)	Indeno(1,2,3-c,d) pyrene (µg/m³)	Naphthalene (µg/m³)	Phenanthrene (µg/m³)	Pyrene (µg/m³)	Total PAHs (µg/m³)	PAH Exceedance? (Yes/No)
7-Dec-16	13	24.6	<0.0017	<0.0017	<0.0017	<0.0017	<0.0017	<0.0017	<0.0017	<0.0017	<0.0017	No
7-Dec-16	14	24.7	<0.0017	<0.0017	<0.0017	<0.0017	<0.0017	<0.0017	<0.0017	<0.0017	<0.0017	No
8-Dec-16	13	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1
8-Dec-16	14	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1
9-Dec-16	13	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1
9-Dec-16	14	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1
12-Dec-16	13	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1
12-Dec-16	14	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1
13-Dec-16	13	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1
13-Dec-16	14	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1
14-Dec-16	13	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1
14-Dec-16	14	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1
15-Dec-16	13	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1
15-Dec-16	14	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1
16-Dec-16	13	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1
16-Dec-16	14	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1
20-Dec-16	13	23.9	<0.0017	<0.0017	0.9	1.8	<0.0017	1.8	4.3	0.74	14.1	No
20-Dec-16	10A	24.1	<0.0017	<0.0017	<0.0017	0.76	<0.0017	1.3	1.3	<0.0017	6.4	No
22-Dec-16	13	7.4	<0.0017	<0.0017	0.27	0.63	<0.0017	<0.0017	1.2	0.25	3.4	No
22-Dec-16	10A	7.3	<0.0017	<0.0017	<0.0017	<0.0017	<0.0017	0.75	0.25	<0.0017	2.0	No
23-Dec-16	13	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1
23-Dec-16	10A	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1	Note 1
26-Dec-16	13	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2
26-Dec-16	10A	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2

**Table 5**  
**PAH Monitoring Results**

*Notes:*  
Sample locations are shown on Figure 1.  
The threshold value for PAHs is 200 µg/m<sup>3</sup>.  
The detection limit for PAHs is 0.0017 µg/m<sup>3</sup> assuming a minimum sample volume of 300 m<sup>3</sup>.  
µg/m<sup>3</sup> - micrograms per cubic meter  
N/A - not applicable  
PAHs - polynuclear aromatic hydrocarbons  
Note 1 - Sample not collected due to inclement conditions: Rain.  
Note 2 - Samples were not collected as project site was closed for holidays.

**Table 6**  
**Asbestos Monitoring Results**

<b>Date</b>	<b>Sample Location</b>	<b>Sampling Period (hours)</b>	<b>Asbestos (fibers/cm<sup>3</sup>)</b>	<b>Asbestos Exceedance? (Yes/No)</b>
7-Dec-16	13	24.6	<0.002	No
7-Dec-16	14	24.7	<0.002	No
8-Dec-16	13	Note 1	Note 1	Note 1
8-Dec-16	14	Note 1	Note 1	Note 1
9-Dec-16	13	Note 1	Note 1	Note 1
9-Dec-16	14	Note 1	Note 1	Note 1
12-Dec-16	13	Note 1	Note 1	Note 1
12-Dec-16	14	Note 1	Note 1	Note 1
13-Dec-16	13	Note 1	Note 1	Note 1
13-Dec-16	14	Note 1	Note 1	Note 1
14-Dec-16	13	Note 1	Note 1	Note 1
14-Dec-16	14	Note 1	Note 1	Note 1
15-Dec-16	13	Note 1	Note 1	Note 1
15-Dec-16	14	Note 1	Note 1	Note 1
16-Dec-16	13	Note 1	Note 1	Note 1
16-Dec-16	14	Note 1	Note 1	Note 1
19-Dec-16	13	24.1	<0.002	No
19-Dec-16	10A	23.9	<0.002	No
20-Dec-16	13	23.9	<0.002	No
20-Dec-16	10A	24.1	<0.002	No
21-Dec-16	13	24.0	<0.002	No
21-Dec-16	10A	23.9	<0.002	No
22-Dec-16	13	7.4	<0.006	No
22-Dec-16	10A	7.3	<0.006	No
23-Dec-16	13	Note 1	Note 1	Note 1
23-Dec-16	10A	Note 1	Note 1	Note 1
26-Dec-16	13	Note 2	Note 2	Note 2
26-Dec-16	10A	Note 2	Note 2	Note 2

**Notes:**

Sample locations are shown on Figure 1.

The threshold value for asbestos is 0.1 fibers/cm<sup>3</sup>.

The detection limit is 0.003 fibers/cm<sup>3</sup> assuming a minimum sample volume of 900 liters.

fibers/cm<sup>3</sup> - fibers per cubic centimeter

Note 1 - Sample not collected due to inclement conditions: Rain.

Note 2 - Samples were not collected as project site was closed for holidays.